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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,072	08/23/2001	Ulrich Fotheringham	WEI0026	1658

832 7590 02/02/2004

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111 E. WAYNE STREET
SUITE 800
FORT WAYNE, IN 46802

EXAMINER

HUG, ERIC J

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 02/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/938,072

Applicant(s)

FOTHERINGHAM ET AL. *eb*

Examiner

Eric Hug

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-23 is/are pending in the application.
- 4a) Of the above claim(s) 12-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 19-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

The following is in response to the amendment filed on October 30, 2003.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3-11, and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over UK 1,383,201 in view of Miyazaki et al (US 5,588,979), Jagodzinski (US 3,615,317), and Van Zee (US 3,120,433).

As indicated in the previous office action, UK 1,383,201 discloses a process of producing glass ceramics comprising the steps of crystallization generally recited in the claims by use of radiant electric heaters. The discussion of Figs. 1, 2, 3, and 5 at pages 2-4 clearly indicates that the process temperatures are controlled and imply the use of temperature curves and a control loop. In addition, the teachings of Miyazaki are relied upon in Fig. 4 where a temperature curve is set forth. These prior art processes differ from the present invention in that Applicant provides for improvement by the use of short-wave infrared radiators with a high color temperature of greater than 1500°C for heating the glass with a thermal dead time of less than 5 seconds.

Jagodzinski discloses a process for crystallizing glass to glass-ceramics by use of high-intensity infrared radiation. The use of infrared radiation heaters is considered an improvement over the use of electric heaters by Jagodzinski, because the exposure times necessary to induce

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crystallization are reduced generally from hours to minutes, or even seconds. More precise control of the heating of glass is also realized. Crystallization is effected by using infrared in the wavelength range of 0.8 to 2.5 microns (column 2, lines 38-47), which is the short wavelength range for infrared light. The exposure time can vary from 45 seconds to 30 minutes (column 2, lines 62-66). Therefore, Jagodzinski teaches short heat-treatment times using short wave infrared light. Given the short exposure times, it appears that the instant thermal dead time is an inherent quality of these short wave radiators. Van Zee, in particular the graph of Figure 4, is cited here as evidence to exemplify that radiant energy in the short-wave infrared range (less than 2.5 microns) clearly exceeds 1500°C (2732°F).

Therefore, at the time of the invention, it would have been obvious for one of ordinary skill in the art to have used the infrared radiators of Jagodzinski instead of electric heaters in the crystallization process in order to obtain benefits and advantages relating to faster processing times and better thermal control.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gaskell et al (US 3,809,543) is a U.S. Patent equivalent to UK 1,383,201.

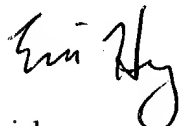
Spanoudis (US 3,620,706) discloses thermal tempering of a glass body using short wave infrared radiation (0.7-3.0 microns).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 571 272-1192. The examiner can normally be reached on Monday through Friday, 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571 272-1700.


jeh